

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



534 440

(43) International Publication Date  
3 June 2004 (03.06.2004)

PCT

(10) International Publication Number  
WO 2004/046265 A1

(51) International Patent Classification<sup>7</sup>: C09D 11/00

(21) International Application Number:  
PCT/GB2003/004938

(22) International Filing Date:  
13 November 2003 (13.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0226710.2 15 November 2002 (15.11.2002) GB

(71) Applicant (for all designated States except US): AVECIA LIMITED [GB/GB]; Hexagon House, Blackley, Manchester M9 8ZS (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): DEVONALD, David, Phillip [GB/GB]; Hexagon House, P.O. Box 42, Blackley, Manchester M9 8ZS (GB).

(74) Agents: MAYALL, John et al.; AVECIA Limited, Intellectual Property Group, P.O. Box 42, Hexagon House, Blackley, Manchester M9 8ZS (GB).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

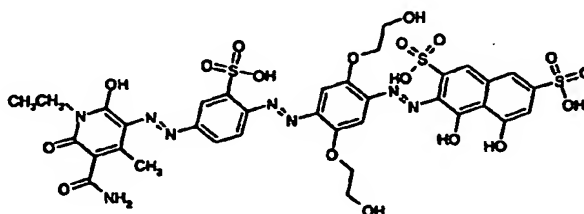
(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INKS FOR INK JET PRINTING COMPRISING A TRIS-AZO DYE



(1)

(57) Abstract: Inks comprising a liquid medium and a tris-azo compound of Formula (1) or salt thereof wherein the liquid medium comprises water and an organic solvent.

WO 2004/046265 A1

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04938

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 C09D11/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C09D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	WO 03 106572 A (THOMPSON NEIL JAMES ; GREGORY PETER (GB); PAUL THOMAS (GB); AVECIA) 24 December 2003 (2003-12-24) examples 61,62	1
A	GB 2 139 643 A (SANDOZ LTD) 14 November 1984 (1984-11-14) the whole document	1-10
A	EP 0 449 250 A (SUMITOMO CHEMICAL CO) 2 October 1991 (1991-10-02) the whole document	1-12
A	US 4 841 037 A (KOBAYASHI MASATSUNE ET AL) 20 June 1989 (1989-06-20) the whole document	1-12

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

2 March 2004

Date of mailing of the international search report

08/03/2004

Name and mailing address of the ISA  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Ellrich, K

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/04938

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03106572	A	24-12-2003	WO 03106572 A1	24-12-2003
			US 2004020404 A1	05-02-2004
GB 2139643	A	14-11-1984	CH 659252 A5	15-01-1987
			DE 3416117 A1	15-11-1984
			FR 2545829 A1	16-11-1984
			HK 102289 A	05-01-1990
			IT 1199122 B	30-12-1988
			JP 1820202 C	27-01-1994
			JP 5026830 B	19-04-1993
			JP 59217762 A	07-12-1984
			US 4780106 A	25-10-1988
			US 4673735 A	16-06-1987
EP 0449250	A	02-10-1991	DE 69123273 D1	09-01-1997
			EP 0449250 A1	02-10-1991
			ES 2094765 T3	01-02-1997
			JP 4211457 A	03-08-1992
			KR 169989 B1	20-03-1999
			US 5180817 A	19-01-1993
US 4841037	A	20-06-1989	JP 1644779 C	28-02-1992
			JP 3008670 B	06-02-1991
			JP 61285275 A	16-12-1986
			JP 1684657 C	31-07-1992
			JP 3049310 B	29-07-1991
			JP 61285276 A	16-12-1986
			DE 3619573 A1	11-12-1986
			GB 2178439 A , B	11-02-1987
			HK 86193 A	27-08-1993
			SG 133092 G	12-03-1993